

PRG calculations based on TEQ fillet target tissue concentrations

Directions: Enter desired target tissue level (TTL) in column D for fillet tissue in terms of dioxin/furan TEQ in mg/kg ww to calculate sediment PRG values (column BF). Cells will indicate "PRG<0" if the contribution of water alone exceeds the TTL.

Chemical Name (Basis of Fillet TTL)	Diet	Dummy values Dioxin/Furan TEQ Fillet TTL (mg/kg ww)	Dioxin/furan congener	Average ratio of congener to TEQ	Surrogate Target Tissue	TTL in terms of Individual DF (FILLET)	Final Target Tissue Units
Dioxin/Furan TEQ (mammals)	multifish fillet	1.0E-06	123478-HexaCDF	22%	2.20E-07	2.20E-04	µg/kg ww
Dioxin/Furan TEQ (mammals)	multifish fillet	1.0E-06	123678-HexaCDD	66%	6.60E-07	6.60E-04	µg/kg ww
Dioxin/Furan TEQ (mammals)	multifish fillet	1.0E-06	12378-PentaCDD	37%	3.70E-07	3.70E-04	µg/kg ww
Dioxin/Furan TEQ (mammals)	multifish fillet	1.0E-06	23478-PentaCDF	58%	5.80E-07	5.80E-04	µg/kg ww
Dioxin/Furan TEQ (mammals)	multifish fillet	1.0E-06	2378-TetraCDF	92%	9.20E-07	9.20E-04	µg/kg ww
Dioxin/Furan TEQ (mammals)	multifish fillet	1.0E-06	2378-TetraCDD	22%	2.20E-07	2.20E-04	µg/kg ww

RGs.

The results in a tissue concentration greater than the TTL.

In terms of chemical?	Sediment PRG (water = bkgd)	PRG Units	PRG in terms of chemical?
123478-HexaCDF	3.79E-04	µg/kg dw	123478-HexaCDF
123678-HexaCDD	5.41E-02	µg/kg dw	123678-HexaCDD
12378-PentaCDD	4.78E-04	µg/kg dw	12378-PentaCDD
23478-PentaCDF	5.91E-03	µg/kg dw	23478-PentaCDF
2378-TetraCDF	4.18E-02	µg/kg dw	2378-TetraCDF
2378-TetraCDD	PRG<0	µg/kg dw	2378-TetraCDD

Calibrated FWM Equations

vlookup name 1	Chemical Name 2	Value Type 3	PHY 4	ZOO 5	BIF 6	BIC 7	EIC 8
23478-PentaCDF_Sed constant	23478-PentaCDF	Sed constant	0	0	0.0671	0.6245	0.0815
23478-PentaCDF_Water constant	23478-PentaCDF	Water constant	36.89857	62.425	5.6383	23.371	8.0042

123478-HexaCDF_Sed constant	123478-HexaCDF	Sed constant	0	0	0.7973	1.9015	2.5605
123478-HexaCDF_Water constant	123478-HexaCDF	Water constant	45.02754	108.02	82.167	83.344	205.52
123678-HexaCDD_Sed constant	123678-HexaCDD	Sed constant	0	0	0.4091	1.526	1.492
123678-HexaCDD_Water constant	123678-HexaCDD	Water constant	22.54952	101.57	47.316	73.604	130.59
12378-PentaCDD_Sed constant	12378-PentaCDD	Sed constant	0	0	0.757	1.5584	2.0884
12378-PentaCDD_Water constant	12378-PentaCDD	Water constant	40.83666	76.158	68.34	61.552	153.4
2378-TetraCDF_Sed constant	2378-TetraCDF	Sed constant	0	0	0.5698	1.8401	2.113
2378-TetraCDF_Water constant	2378-TetraCDF	Water constant	31.91106	117.41	64.903	87.596	180.93
2378-TetraCDD_Sed constant	2378-TetraCDD	Sed constant	0	0	0.7994	1.809	2.4521
2378-TetraCDD_Water constant	2378-TetraCDD	Water constant	44.73177	98.602	79.377	76.965	192.08

DF / TEQ: Simple ratios

DF / TEQ: Dummy ratios
123478-HexaCDF
123678-HexaCDD
12378-PentaCDD
23478-PentaCDF
2378-TetraCDF
2378-TetraCDD

DF / TEQ: Dummy ratios

22%
66%
37%
58%
92%
22%

SCL	LSS	CAR	SMB	NPM
9	10	11	12	13
0.4107	0.217006	0.1959	0.2831	0.2228
23.654	19.05556	15.192	17.506	15.188

1.1972	0.560777	0.4507	0.8572	0.8753
77.647	46.33279	29.488	56.431	60.388
0.0662	0.028879	0.0244	0.026	0.0369
4.6	2.508492	1.558	1.8773	2.7092
2.3565	1.268697	1.0319	2.8311	2.2469
140.3	93.93808	64.217	170.77	141.9
0.1063	0.046065	0.038	0.0438	0.0621
7.2861	4.023964	2.471	3.093	4.5185
2.9248	1.604717	4.3657	3.7958	2.958
185.32	128.7907	282.47	242.82	197.57

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Chemical	Chemical Group	FWM Chemical?	Sediment ($\mu\text{g/kg}$)		Water (ng/L) - filtered	
			Site-wide SWAC	Background	Site-wide (calibrated)	Background
23478-PentaCDF	Dioxins/Furans	yes	0.0115		6.4E-06	2.04E-06
123478-HexaCDF	Dioxins/Furans	yes	0.00271	-	1.1E-05	7.23E-06
123678-HexaCDD	Dioxins/Furans	yes	0.0766	-	2.4E-05	1.61E-05
12378-PentaCDD	Dioxins/Furans	yes	0.00025	-	6.9E-06	2.11E-06
2378-TetraCDF	Dioxins/Furans	yes	0.0168	-	7.8E-06	3.75E-06
2378-TetraCDD	Dioxins/Furans	yes	0.0001	-	1.2E-05	3.24E-06

FWM species code	Column number
phy	4
zoo	5
bif	6
bic	7
eic	8
scl	9
lss	10
car	11
smb	12
npm	13

Revised Chem Name	EPA Chem Name	Smallmouth		Whole k Common Carp
		Bass	<i>smb notes</i>	
123478-HexaCDF	-	6.82	calc'd from empirical data (n =	1.53
123678-HexaCDD	-	7.67	calc'd from empirical data (n =	1.49
12378-PentaCDD	-	6.69	calc'd from empirical data (n =	1.43
23478-PentaCDF	-	6.59	calc'd from empirical data (n =	1.49
2378-TetraCDF	-	5.68	calc'd from empirical data (n =	1.38
2378-TetraCDD	-	6.08	calc'd from empirical data (n =	1.35

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body/Fillet Concentration Ratio			
carp notes	Brown Bullhead	Black Crappie	crappie notes
calc'd from empirical data (n = 1)	1.53	surrogate = carp	6.82 surrogate = bass
calc'd from empirical data (n = 1)	1.49	surrogate = carp	7.67 surrogate = bass
calc'd from empirical data (n = 1)	1.43	surrogate = carp	6.69 surrogate = bass
calc'd from empirical data (n = 1)	1.49	surrogate = carp	6.59 surrogate = bass
calc'd from empirical data (n = 1)	1.38	surrogate = carp	5.68 surrogate = bass
calc'd from empirical data (n = 1)	1.35	surrogate = carp	6.08 surrogate = bass